CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 80-1

NPDES NO. CA0005134

WASTE DISCHARGE REQUIREMENTS FOR:

CHEVRON, USA, RICHMOND REFINERY AND
ALLIED CHEMICAL CORPORATION, RICHMOND WORKS,
INDUSTRIAL CHEMICALS DIVISION,
RICHMOND, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Chevron USA submitted an NPDES Permit Application dated May 16, 1979, and amended it by a letter dated September 12, 1979, for reissuance of NPDES Permit No. CA0005134. The Board reissued the Permit on October 16, 1979, and stated therein its intent to amend the Permit soon.

2. Allied Chemical Corporation submitted an NPDES Permit Application dated August 6, 1979, and amended it by a letter dated September 10, 1979, for issuance of an NPDES Permit.

3. Chevron USA operates a petroleum refinery with a crude-run capacity of 365,000 barrels per day. It manufactures fuels, lubricants, asphalt and petrochemicals and is classified as an integrated refinery as defined by the U. S. Environmental Protection Agency in 40 CFR 419.50.

4. Allied Chemical manufactures sulfuric acid and oleum, using alkylation acid and sulfur from the refinery as part of its raw material. Allied discharges its wastewater to the Chevron treatment system.

5. Allied and Chevron are hereafter referred to as the discharger.

6. Waste 001 averages 12.5 mgd and consists mainly of treated refinery process wastewater. During wet weather, the flow is increased for short periods to as much as 28 mgd by runoff from the refinery and a small area of adjacent industrial and residential development. Waste 001 also includes a small quantity (0.072 mgd) of wastes from Allied, consisting of cooling tower blowdown, boiler blowdown, steam condensate, plant washings and stormwater.

7. Waste 002 is about 90 mgd of Chevron's once-through cooling water.

8. Waste 001 is treated in aerated lagoons and oxidation ponds, then combined with waste 002 and discharged to Castro Creek, 500 yards from its confluence with Castro Cove, an embayment of San Pablo Bay. During low tide the discharge flows 2000 yards to San Pablo Bay in a channel cut into the exposed mudflats of Castro Cove.

9. In April 1975, the Board adopted the Water Quality Control Plan for the San Francisco Bay Basin.

10. The beneficial uses of Castro Creek, Castro Cove and San Pablo Bay are:

a. Water contact recreation
b. Non-contact water recreation
c. Navigation
d. Open commercial and sport fishing
e. Wildlife habitat
f. Fish spawning and migration
g. Industrial uses
h. Preservation of rare and endangered species
i. Shellfishing

11. The Basin Plan includes the following prohibitions:

"...It shall be prohibited to discharge:

1. Any wastewater which has particular characteristics of concern to beneficial uses:

... ...

b. At any point at which the wastewater does not receive a minimum initial dilution of at least 10:1.

c. Into any nontidal water or dead-end slough or similar confined water areas or their immediate tributaries. ..."

12. The Basin Plan provides that exceptions to these discharge prohibitions may be granted for certain wet weather and other discharges:

a. Having a high initial dilution.

b. Where an inordinate burden would be placed on the discharger relative to beneficial uses protected.

c. When an equivalent level of environmental protection can be achieved by alternate means.

13. The receiving waters of Castro Creek-Castro Cove constitute a confined water area similar to a deadend slough as defined by the Basin Plan.

14. On March 21, 1978, the Board adopted Order 78-18 and on October 16, 1979, adopted Order 79-125. These Orders revised and reissued an NPDES Permit to Chevron, and prohibited discharge to Castro Creek, and where 10:1 dilution is not achieved. The Orders included a schedule for Chevron to conduct a study to determine whether environmental protection, equivalent to what would exist in the absence of their process waste discharge, is being provided to Castro Creek, and to determine whether exceptions to the discharge prohibitions are warranted.

15. Order 78-18 required Chevron perform a study to define receiving water un-ionized ammonia concentrations so as to determine a reasonable "zone of initial dilution" within which compliance with the annual median limit need not be achieved. Chevron submitted a report dated July 7, 1979, stating that compliance with the un-ionized ammonia limit was not achieved at, and immediately upstream from the discharge point, but was achieved at a point 3000 feet downstream where Castro Creek widens to become Castro Cove. Requiring compliance at this downstream location as the report recommends, could cause un-ionized ammonia concentrations exceeding permit limits in the sloughs of the marsh adjacent to the discharge. Further monitoring is needed to define concentrations in the sloughs and to assess their significance.

16. This project involves the continued operation of a privately-owned facility with negligible or no expansion of use beyond that previously existing. Consequently, this project will not have a significant effect on the environment based upon the exemption provided in Section 15101, Title 14, California Administrative Code.

17. Effluent limitation and toxic effluent standards established pursuant to Sections 208(b), 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.

18. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

19. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of Waste 001 containing constituents in excess of the following limits is prohibited:

Constituent	Units	30-day Average	Maximum Daily
BOD (5-day @ 20°C)	lbs/day	4770	8960
	kg/day	2160	4060
Suspended Solids	lbs/day	3930	6170
	kg/day	1780	2800
TOC	lbs/day	10500	19800
	kg/day	4760	8960
Oil and Grease	lbs/day	1500	2810
	kg/day	679	1270
	mg/l		15
Phenol	lbs/day	31.6	65.1
	kg/day	14.3	29.5
Ammonia as N	lbs/day	1767	3860
	kg/day	802	1750
Sulfide	lbs/day	26.0	57.7
	kg/day	11.8	26.2
Total Chromium	lbs/day	17.0	135
	kg/day	7.71	61.2
Hexavalent Chromium	lbs/day	5.12	11.6
	kg/day	2.32	5.27
Settleable Solids	ml/l-hr	0.1	0.5

2. In addition to the 30-day average and daily maximum pollutant weight allowances shown in A.1, pollutant discharges of storm water are permitted in accordance with the following schedule:

Pounds of pollutant per 1,000 gallons of storm runoff discharged through the outfall.

Constituent	30-day Average	Maximum Daily
BOD (5-day @ 20 °C)	0.21	0.40
Total Suspended Solids	0.17	0.26
TOC	0.46	0.88
Oil and Grease	0.067	0.126

The total effluent limitation for the discharge is the sum of the stormwater allocation and the lbs/day limits contained in A.1. The total effluent limitation (both maximum and average) is to be computed by the discharger on a monthly basis as shown in Part B of the Monitoring Program.

3. The discharge of waste 002 shall not contain a TOC concentration above intake levels in excess of 5 mg/l.

4. The combined discharge of Waste 001 and 002 shall not have pH less than 6.5 nor greater than 8.5.

5. In any representative set of samples, the combined discharge of Waste 001 and 002 shall meet the following limit of quality:

TOXICITY:

The survival of test fishes in 96 hour bioassays of the effluent shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 consecutive samples.

B. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place.

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. Dissolved oxygen — 5.0 mg/l minimum. Annual median - 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.

b. Dissolved sulfide 0.1 mg/l maximum.

c. pH Variation from natural ambient pH by more than 0.2.

d. Un-ionized ammonia (as N) Maximum - 0.4 mg/l

3. The discharge of waste shall not cause the un-ionized ammonia concentration (as N) in the main mass of the receiving water to exceed 0.025 mg/l as an annual median. The interim point of compliance shall be at station CA-20d as defined by the Self-Monitoring Program. The Board will establish a final point of compliance following review of the results of the relevant tasks of the "equivalent protection study", required by Provision D.5 below.

4. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Discharge Prohibitions

1. Discharge of Waste 001 into waters of Castro Creek and Castro Cove is prohibited after December 31, 1983, or three years following the cessation of discharge to Castro Cove of the San Pablo Sanitry District effluent, whichever is later, unless the discharger can show justification for an exception from the Basin Plan Prohibition stated in Finding 11 above.

2. Discharge of Waste 001 at any place where it does not receive a minimum initial dilution of at least 10:1 is prohibited after December 31, 1983, or three years following the cessation of discharge to Castro Cove of the San Pablo Sanitary District effluent, whichever is later, unless the discharger can show justification for an exception from the Basin Plan Prohibition stated in Finding 11 above.

D. Provisions

1. Neither the treatment nor the discharge of pollutants shall create a nuisance as defined in the California Water Code.

2. There shall be no bypass of untreated wastewater to waters of the State.

3. The discharger shall comply with all sections of this Order immediately upon adoption with the exception of Prohibitions C.1 and C.2.

4. An exception to Discharge Prohibitions described in C.1 and C.2 above will be considered providing the discharger can meet the conditions listed in Finding 12 of this Order.

5. The discharger shall comply with Prohibitions C.1 and C.2 and Provision D.4 according to the following time schedule:

Task	Submit Report
a. Prepare semi-annual progress report	(semi-annual between July 30, 1980 and July 30, 1983)
b. Prepare final report	December 31, 1983*

*or three years following cessation of the San Pablo Sanitary District discharge to Castro Creek, whichever is later.

6. This permit may be modified, or, alternatively revoked and reissued, to comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defenses Council, Inc. et. al. v. Russell E. Train, 8 ERC 2120 (D.D.C. 1976), if the effluent limitation so issued:

   (1) is different in conditions or more stringent than any effluent limitation in the permit; or

   (2) controls any pollutant not limited in the permit.

7. This Board's Order No. 78-18 and those portions of Order No. 79-125 pertaining to Chevron, USA are hereby rescinded.

8. This Order includes all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated April 1977 except A.5, B.2, B.5.

9. This Order expires on September 30, 1980, and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

10. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by a letter, a copy of which shall be forwarded to this Board.

11. In assessing responsibility for violations of any limitation contained in this Order the Board will take into consideration, among other things, the relative characteristics and flows of the dischargers during the period of violation.

12. This Order shall serve as a revised National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from date of adoption, provided the Regional Administrator, U. S. Environmental Protection Agency, has no objections.

I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 15, 1980.

FRED H. DIERKER
Executive Officer

Attachments:
Standard Provisions, Reporting
Requirements & Definitions dated April 1977
Self-Monitoring Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

CHEVRON, USA, RICHMOND REFINERY AND ALLIED CHEMICAL CORPORATION, RICHMOND WORKS, INDUSTRIAL CHEMICALS DIVISION, RICHMOND, CONTRA COSTA COUNTY

NPDES NO. CA 0005134

ORDER NO. 80-1

CONSISTS OF

PART A , dated 1/78

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
I-001	At any point in the intake line supplying once-through cooling water such that the sample is representative of the intake water.

B. EFFLUENT

Station	Description
E-001 Process Water Effluent	At any point in the discharge line from No. 2 oxidation pond such that the sample is representative of the treated process water.
E-002 Segregated Salt Water	At any point in the 250-foot Channel far enough up stream to avoid mixing segregated salt water with process water effluent.
E-003 Combined Effluent	At any point immediately above the 250-foot Channel Dam such that the sample is representative of the mixture of segregated salt water and treated process water.

C. RECEIVING WATERS

Station	Description
C-A	At a point located within 200 feet offshore from outfall 001.
C-A1	At a point in Castro Creek, located at the confluence with the 250-foot channel.
C-A2	At a point in Castro Creek located 250 feet southeasterly of Station C-A1.
C-12d	At the mouth of an unnamed slough which drains the marsh east of Castro Creek. The mouth is about 1800 feet northwest of the discharge point.
C-20d	At a point in San Pablo Bay located in the entrance channel to Castro Creek, within the limits of the southwesterly quarter of grid square No. 20.

Station	Description
C-28d	At a point in San Pablo Bay, located in the entrance channel to Castro Creek, within the limits of the southwesterly quarter of grid square No. 28.
C-31b	At a point in San Pablo Bay, located within the limits of the northeasterly quarter of grid square No. 31.
C-47a	At a point in San Pablo Bay, located within the limits of the northwesterly quarter of grid square No. 47.
C-48d	At a point in San Pablo Bay, located within the limits of the southwesterly quarter of grid square No. 48.

D. SEDIMENTS

Station	Description
B-A1	At a point in Castro Creek, located at the confluence with the 250-foot channel.
B-28d	At a point in San Pablo Bay, located in the entrance channel to Castro Creek, within the limits of the southwesterly quarter of grid square No. 28, per attached drawing (corresponds with Station C-28d).
B-39b	At a point in San Pablo Bay, located within the limits of the northeasterly quarter of grid square No. 39, per attached drawing (corresponds with Station C-39b).
B-48d	At a point in San Pablo Bay, located within the limits of the southwesterly quarter of grid square No. 48, per attached drawing (corresponds with Station C-48d).

E. LAND OBSERVATIONS

Station	Description
P-1	At the point of discharge to Castro Creek.

F. MISCELLANEOUS REPORTING

1. The discharger shall record the rainfall on each day of the month.

2. At the end of each month the Total 001 Effluent limit shall be calculated on Form S (attached) as shown. Form S shall be submitted with the monthly monitoring report.

3. The daily volume of storm runoff discharge shall be defined as the process waste treatment system effluent flow (Waste 001) in excess of the estimated process waste flow. Estimated process waste flow shall be defined as:

   a. The average discharge during the week prior to the storm event when such events are preceded by 2 weeks without rainfall.

   b. At all other times, the average process waste treatment system effluent discharge during the months of normal plant operation of the preceding dry weather season.

   c. Daily storm runoff discharge may be recorded until effluent flow rates are reduced to the higher of the two flow rates described in a and b.

4. Annual report shall include, when possible, at least the most recent 10 samples of heavy metals taken since 1977.

5. The ratio of cooling water to process effluent shall be reported as a daily and monthly average value.

6. Monthly monitoring report shall indicate whether or not mechanical aerators in cooling water channel were in continuous operation during the month and, if not, the time and duration of outages.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given as Table I.

III. MODIFICATIONS TO PART A

Exclusions Paragraphs: C.3, D.4, E.4.

I, Fred H. Dierker, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 80-1.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

Attachments:
Table I
Drawing
Form S

FRED H. DIERKER
Executive Officer

Effective Date _____

TABLE I

SCHEDULE OR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001		E-002		E-003		C - 12d	C-A1	C-A2	C- 20d		C- 28d	C- 31b
TYPE OF SAMPLE	C-24	G	C-24	G	C-24	G	G	G	G	G		G	G
Flow Rate (mgd)	D				D								
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	W												
Chlorine Residual & Dosage (mg/l & kg/day)													
Settleable Matter (ml/1-hr. & cu. ft./day)		W											
Total Suspended Matter (mg/l & kg/day)	W				M								
Oil & Grease (mg/l & kg/day)		(1) W											
Coliform (Total or Fecal) (MPN/100 ml) per req't													
Fish Toxicity, 96-hr. TL_{50} % Survival in undiluted waste	M				M								
Ammonia Nitrogen (mg/l & kg/day)	W				M		M	M	M	M		M	M
Nitrate Nitrogen (mg/l & kg/day)													
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity (Jackson Turbidity Units)						M		M	M	M			
pH (units)					(4) cont		M	M	M	M		M	M
Dissolved Oxygen (mg/l and % Saturation)		W				W (4)		M	M	M		M	M
Temperature (°C)					cont		M	M	M	M		M	M
Apparent Color (color units)													
Sulfides, Total (mg/l & kg/day) (2)		W											
Sulfides (2) Dissolved (mg/l)								M	M				
Arsenic (mg/l & kg/day)													
Cadmium (mg/l & kg/day)	Y												
Chromium, Total (mg/l & kg/day)	W												
Copper (mg/l & kg/day)	Y												
Cyanide (mg/l & kg/day)	Y												
Silver (mg/l & kg/day													
Lead (mg/l & kg/day)	Y												

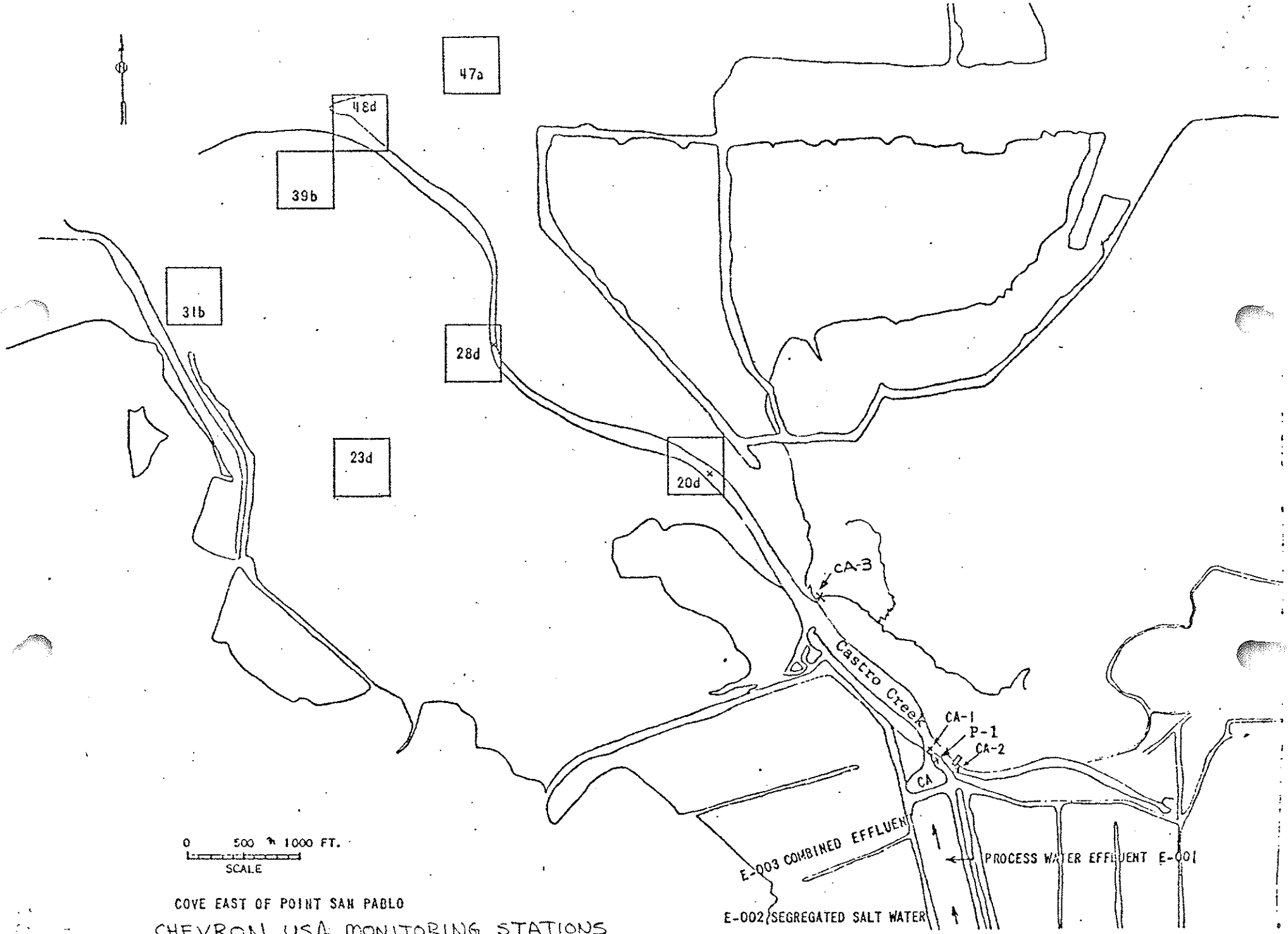
TABLE I

SCHEDUL. OR SAMPLING, MEASUREMENTS, A. ANALYSIS

Sampling Station	C-47a	C-48d	B-A-1, B-48d, 28d, 32b	P-1	I-001							
TYPE OF SAMPLE	G	G	G		Q							
Flow Rate (mgd)												
BOD, 5-day, 20° C, or COD (mg/l & kg/day)												
Chlorine Residual & Dosage (mg/l & kg/day)												
Settleable Matter (ml/1-hr. & cu. ft./day)												
Total Suspended Matter (mg/l & kg/day)												
Oil & Grease (mg/l & kg/day)												
Coliform (Total or Fecal) (MPN/100 ml) per req't												
Fish Toxicity, 96-hr. TL_{50} % Survival in undiluted waste												
Ammonia Nitrogen (mg/l & kg/day)	M	M										
Nitrate Nitrogen (mg/l & kg/day)												
Nitrite Nitrogen (mg/l & kg/day)												
Total Organic Nitrogen (mg/l & kg/day)												
Total Phosphate (mg/l & kg/day)												
Turbidity												
pH (units)	M	M										
Dissolved Oxygen (mg/l and % Saturation)	M	M										
Temperature (°C)	M	M										
Apparent Color (color units)												
Secchi Disc (inches)												
Sulfides (if DO < 5.0 mg/l) Total & Dissolved (mg/l)												
Arsenic (mg/l & kg/day)												
Cadmium (mg/l & kg/day)												
Chromium, Total (mg/l & kg/day)												
Copper (mg/l & kg/day)												
Cyanide (mg/l & kg/day)												
Silver (mg/l & kg/day												
Lead (mg/l & kg/day)												

TABLE I (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	C-47a	C-48d	All B	P-1	I-001								
TYPE OF SAMPLE	G	G	BS	O	C-24	G							
Mercury (mg/l & kg/day)													
Nickel (mg/l & kg/day)													
Zinc (mg/l & kg/day)													
PHENOLIC CONFOUNDS (mg/l & kg/day)													
All Applicable Standard Observations	M	M		W									
Bottom Sediment Analyses and Observations			2/Y										
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)													
TOC					W								
NH_4OH, undissociated as N, mg/l		M											



COVE EAST OF POINT SAN PABLO

CHEVRON USA MONITORING STATIONS

FORM S
STORM WATER ALLOCATION

MONTH_____ YEAR_____

A

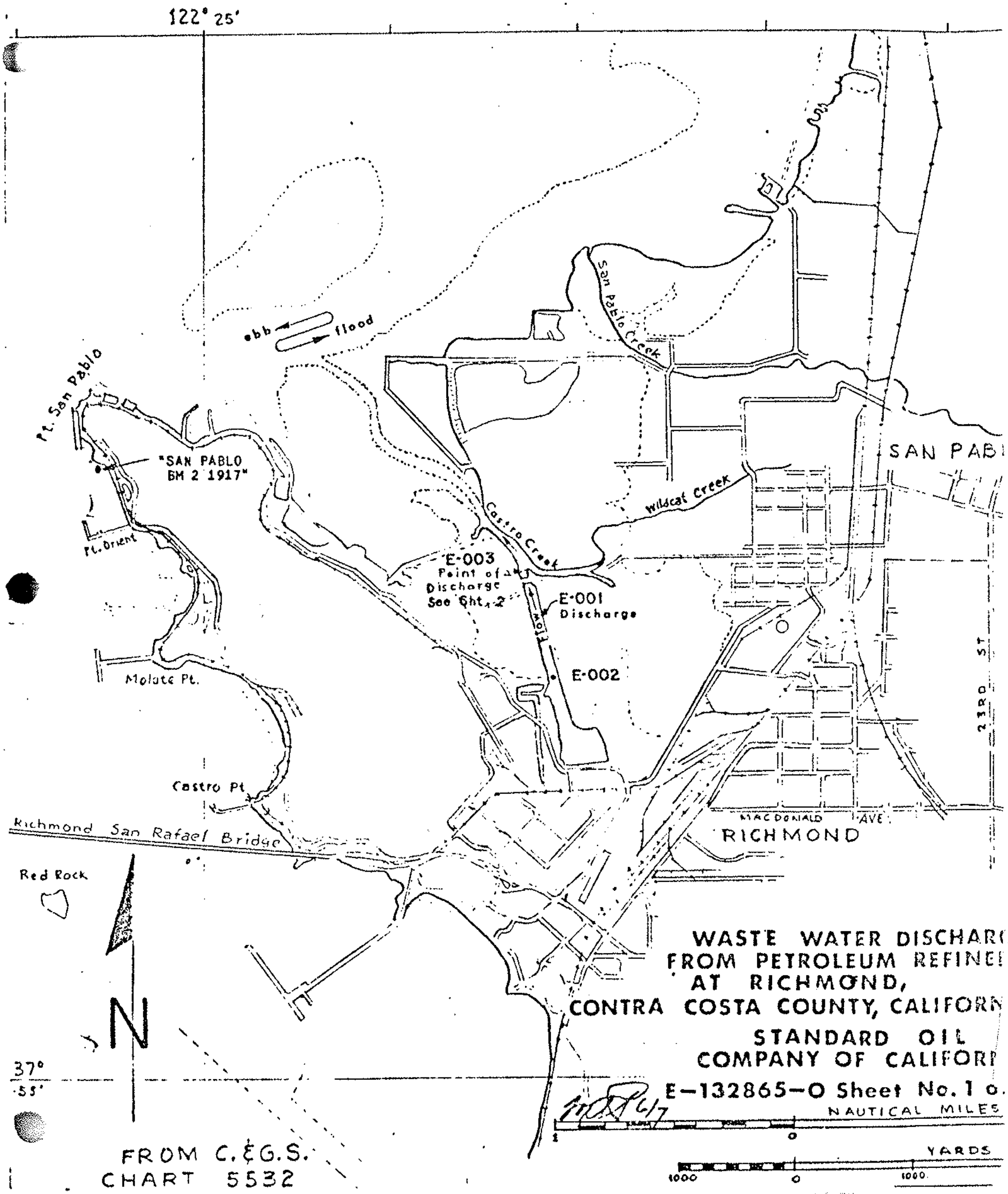
	Rainfall (inches)	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
Total		
Mon. Aver.		

CALCULATION OF TOTAL EFFLUENT LIMITS

		MONTHLY AVERAGE STORM FLOW	STORM WATER ALLOCATION FACTOR x (lbs/1,000 gal.)	= lbs/day ALLOCATION	A3 EFFLUENT LIMITS + lbs/day	= TOTAL 001 EFFLUENT LIMITS (lbs/day)
30-DAY AVERAGE	BOD_5		x 0.21	=	+ 4770	=
	TSS		x .17	=	+ 3980	=
	TOC		x .46	=	+ 10500	=
	O&G		x .067	=	+ 1500	=
		MAXIMUM STORM FLOW FOR ANY ONE DAY (FROM COLUMN B)	STORM WATER ALLOCATION FACTOR x (lbs/1,000 gal.)	= lbs/day ALLOCATION	A3 EFFLUENT LIMITS + lbs/day	= TOTAL 001 EFFLUENT LIMIT (lbs/day)
MAXIMUM DAILY	BOD_5		x 0.40	=	+ 8960	=
	TSS		x .26	=	+ 6170	=
	TOC		x .88	=	+ 19800	=
	O&G		x .126	=	+ 2810	=

SUPPLEMENTAL AGENDA ITEM #7

VJW (FILE)



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